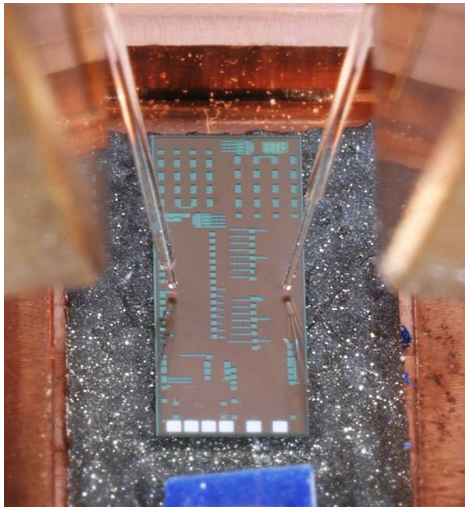

https://phoqus-t.com/

PhoQuS-T

Photonic and quantum sensors for practical integrated primary thermometry

23FUN01 PhoQuS-T

This project aims to develop integrated optical practical primary thermometry from 4 K to 500 K to enable in-situ traceability in further practical applications.

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The project 23FUN01 PhoQuS-T has received funding from the European Partnership on Metrology, co-financed from the European Union's Horizon Europe Research and Innovation Programme and by the Participating States.

EURAMET project page:
https://www.euramet.org/project-23fun01

Consortium

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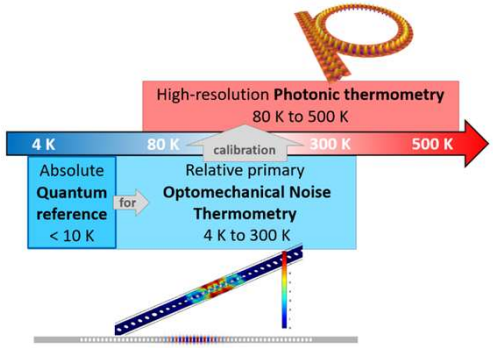
Why this project?

The kelvin redefinition has prompted new approaches to temperature traceability, focusing on practical primary thermometry that offers reliable, on-demand temperature measurements without the need for recalibration.

This project explores innovative photonic and quantum-based methods, which promise significant advancements in thermometry by providing self-calibrating sensors.

Combination of photonic and quantum-based methods for practical primary thermometry from 4 K to 500 K :



What it is about?

Based on the achievements of the 17FUN05 PhotOQuanT project, the 23FUN01 PhoQuS-T project will develop integrated optical practical primary thermometry from 4 K to 500 K to enable in-situ traceability in further practical applications.

This will be reached through the 4 technical objectives:

1. Noise thermometry from 4 K to 300 K based on optomechanical sensors with quantum reference below 10 K.
2. High-resolution photonic thermometry frrom 80 K to 500 K based on micro and nano resonators
3. Packaging solutions of the optomechanic and photonic sensors
4. Validation, traceability and quantum applications of the developped sensors

What impacts are expected?

This project aims to revolutionize temperature sensing for integrated circuits and other applications requiring reliable, long-term in-situ measurements, such as in space, aircraft and submarines, where recalibration is impractical. The development of a wide-range primary sensors, covering 4 K to 500 K, is particularly valuable for sectors like Hydrogen storage and Quantum Technologies, offering accurate, zero-drift temperature sensing that can be integrated into chipsets and other technologies.

PhoQuS-T

Web: https://phoqus-t.com/
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End: 31/08/2027
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